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ABSTRACT

This study addressed four research questions: (1) Can first graders comprehend and explain cohesive ties in reading?; (2) Can first graders comprehend and explain ungrammatical or ambiguous cohesive items in reading?; (3) Is the control of cohesive elements in reading related to measures of reading achievement in first grade?; and (4) What strategies do beginning readers use to comprehend cohesive ties in connected discourse? Subjects, 28 first grade students in California, were tested individually using 14 short items presented on index cards during 2 sessions. Each session included grammatical and ambiguous items. Subjects read each item aloud, then answered questions about it. Scores on the standardized Comprehensive Test of Basic Skills were collected for all subjects and the teacher ranked students on reading achievement at the end of the school year. Results indicated that first graders generally have good control over endophoric cohesive ties in reading. However, they are still unsophisticated in their ability to think about and express the basis of their judgments. The analysis of the cohesion comprehension measures suggests three levels of ability in comprehending cohesive ties in reading: the first level shows an inability to comprehend or explain cohesive ties; the second level has the ability to comprehend the content of cohesive ties but an inability to explain the basis of comprehension; and the third level has the ability to explain the basis of comprehension. At least two of the strategies used for interpreting ungrammatical ties parallel strategies used in general for comprehension of connected discourse. (Three tables of data are included and 10 references are attached.) (MG)

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FIRST GRADERS' COMPREHENSION OF COHESIVE TIES IN READING

Running Head: Cohesive Ties

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FIRST GRADERS' COMPREHENSION OF COHESIVE TIES IN READING

When young children learn to read and write, they build on their knowledge of the vocabulary, structures and uses of spoken language. At the same time, however, they must learn new structures and uses which are not characteristic of spoken language. One area of shift from spoken to written discourse is in the use of the cohesive system (Halliday & Hasan, 1976). Written discourse relies on endophoric cohesive ties rather than on exophoric reference to the extralinguistic context, which includes the use of deictic expressions.

Research on the development of cohesion in writing (King & Rentel, 1981, Cox et al., 1990) has shown the presence of cohesive elements even among young writers. Research on cohesion in reading (Richek, 1976-77, Moe, 1979, Chapman, 1983, Webber, 1980, Murphy, 1986) has shown developmental changes in comprehension of cohesive ties.

We surmise that children who have trouble with beginning reading and writing might be having trouble with decontextualized uses of written language. In particular, young children may have difficulty comprehending endophoric cohesive ties. The ability to comprehend endophoric references may be a contributing factor to reading success. The failure to comprehend endophoric cohesive ties may result in reading difficulties.

In addition, we surmise that metalinguistic awareness, including awareness of problems in comprehension, will contribute to children's reading ability (Markman, 1977, Brown, 1980). This

awareness should extend to the use of cohesive ties in text.

In our study we address four research questions: (1) Can first grade children comprehend and explain cohesive ties in reading? (2) Can first graders comprehend and explain ungrammatical or ambiguous cohesive items in reading? (3) Is the control of cohesive elements in reading related to measures of reading achievement in first grade? (4) What strategies do beginning readers use to comprehend cohesive ties in connected discourse?

METHOD

Subjects

Subjects were one entire first grade class in a middle class, urban California community. Of the 28 subjects in the study, 15 were boys and 13 were girls. Nine subjects were non-native speakers of English, but all were fluent English speakers.

Materials

Testing was done using 14 short items presented on index cards. Of these items, nine employed grammatical cohesive ties (e.g., "Jane says to Kate, '<u>You</u> have a green hat'"). Five items involved ambiguous ties (e.g., "Kate says to Jane, '<u>We</u> are going for a swim'") or ungrammatical ties (e.g., "Kate has a red hat and a green hat. She gives <u>the hat</u> to Jane"). Anaphoric references included personal and possessive pronouns, definite reference (the), and locative adverbs (there). Ambiguous and

ungrammatical items included pronouns and definite expressions with multiple possible antecedents or no textual antecedent.

Cohesion Tasks

Students were tested individually in two sessions. Each session included grammatical and ambiguous or ungrammatical items. Subjects read each item aloud, then answered questions about it. For grammatical items, both content questions (e.g., Who is going for a swim?) and metalinguistic questions (e.g., How do you know? What word tells you who went?) were asked about each item. The same two types of questions were asked for ungrammatical items, but we see both as metalinguistic, since the question "What color hat did Jane give to Kate?" has no "correct" answer, but instead requires a judgment that no unique antecedent for "the hat" is available. Testing was done over a two month period in the spring. All sessions were tape recorded.

Reading Achievement Measures

Scores on the standardized Comprehensive Test of Basic Skills, administered in the spring, were collected for all subjects. In addition, the classroom teacher ranked students on reading achievement at the end of the school year.

Data Analysis

All testing sessions were transcribed. For each subject, each grammatical item received both a content score and a

metalinguistic score. Items were scored on a scale from 0 to 2. Each ungrammatical item received two metalinguistic scores, one on judgment of grammaticality (What color hat did Jane give Kate?) and one on explanation (How do you know?). Again, each item was scored on a scale from 0 to 2. Thus each subject received three total scores: one content and three metalinguistic scores. Total scores were expressed as percentages of total possible scores (that is, level 2 answers on all questions asked).

Following scoring of responses, correlations were run between each score and the two measures of reading achievement. In addition, qualitative analysis focused on the strategies subjects used to interpret ungrammatical items.

RESULTS

In order to study the relative difficulty of comprehending and explaining anaphoric references, we obtained the mean and variability of performance on the four cohesion comprehension measures, which are reported in Table 1. The grammatical content questions were by far the easiest. In fact, the mean was close to a perfect score. This result suggests that first graders generally can comprehend the anaphoric constructions tested in the grammatical items.

The means for the metalinguistic scores were considerably lower than the content score mean. That is, the ability to explain the basis of grammatical competence, and the ability to

recognize and explain ungrammatical cohesive elements, were much more difficult. While some subjects scored close to perfect on these measures, others scored very low. The means and variability on the three metalinguistic measures were very similar, suggesting that they tap a common linguistic ability.

Table 1

Group Performance (Percent Correct) on Cohesion Task

	N	Mean	SD	Minimum	Maximum
Grammatical Content	24	94.5	.06	78	100
Grammatical Metalinguistic	24	63.0	.16	25	95
Ungrammatical Metalinguistic I	21	62.0	.24	20	100
Ungrammatical Metalinguistic II	21	55.5	.21	20	90

Table 2

Correlations Between Cohesion and Reading Measures

	Rank	CTBS Score
Grammatical Content	.08	.15
Grammatical Metalinguistic	.24	.33
Ungrammatical Metalinguistic I	.44 ($p < .05$)	.56 ($p < .01$)
Ungrammatical Metalinguistic II	.62 ($p < .004$)	.69 ($p < .0009$)

Correlations between the cohesion comprehension measures and the two reading achievement measures are shown in Table 2. There was a positive correlation between performance on all cohesion

measures and the reading achievement measures. Correlations reached statistical significance only for the ungrammatical metalinguistic scores.

Table 3

Strategies for Resolving Referential Ambiguity

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1. Anaphoric Link

Sam has a red hat. He gives it to her.

Q: Who does Sam give his hat to?
MYM: To um ... to um ... Jane?
Q: How do you know that he gave it to Jane?
MYM: Cause I can remember, she came over. [refers to earlier item: "Jane goes to Sam's house. He opens the door."]

2. Minimal Distance Principle

Kate has a green hat and a red hat.
She gives it to Jane.

Q: What color hat does Jane get?
MAY: Red.
Q: How do you know that she gets a red hat?
MAY: Cause they're the closest together. ... Because "red" and "Jane" are kind of the closest together.

3. Text Elaboration/Background Knowledge

Kate has a red hat and a green hat.
She gives the hat to Jane.

Q: What color hat does Jane get?
ALI: Red.
Q: How do you know it's red?
ALI: Because um ... the story says that Kate has a red and... a red hat and a green hat, and she gives... the hat to Jane, and Kate wants a green hat, so she gives the red hat to Jane.

Qualitative analysis of responses to ungrammatical items revealed the use of three strategies for resolving referential ambiguity: (a) construction of anaphoric links to previous items

involving the same story characters, (b) use of a principle of minimal distance between antecedent and coreferent expressions, and (c) use of background knowledge to construct plausible explanations for choosing one antecedent over another. Examples of these strategies are provided in Table 3.

DISCUSSION

The results suggest that first graders, both good and poor readers, generally have good control over endophoric cohesive ties in reading. However, they are still unsophisticated in their ability to think about and express the basis of their judgments. Better readers seem better able to do this.

The analysis of the cohesion comprehension measures suggests three levels of ability in comprehending cohesive ties in reading: level 1: inability to comprehend or explain cohesive ties; level 2: ability to comprehend the content of cohesive ties but inability to explain the basis of comprehension; level 3: ability to explain the basis of comprehension.

None of the first graders in this study were at level 1 for the test items. However, the grammatical cohesive items used in this study were rather simple to comprehend: antecedent and coreferent expressions were not far apart or embedded in grammatically complex sentences, and the number of possible antecedents were rather limited. It is possible that first graders would have difficulty with more complex cohesive constructions.

The strategies for interpreting ungrammatical ties were of particular interest. These strategies show a sophisticated ability to interpret language and in some cases to explain the basis of their judgments, even though those judgments are wrong by adult standards. At least two of these strategies - making anaphoric connections and using background knowledge - parallel strategies used in general for comprehension of connected discourse.

Future research should continue to focus on comprehension and interpretation of grammatical and ungrammatical cohesive ties among diverse populations and age groups.

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